

**Preliminary Amendment**  
**New U.S. National Phase Filing**  
**Corresponding to PCT/US2004/036854**  
**Docket No. CNIUS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-73 have been cancelled.

74. (new) A method of simultaneously producing multiple nanostructures of a predetermined length, the method comprising:

coating at least a portion of multiple tips formed on a first substrate with a catalyst, wherein each respective tip comprises a base and an apex;

positioning a first surface of a second substrate distal to the multiple tips, wherein the distance of the first surface of the second substrate from the multiple tips correlates with the maximum predetermined length of the multiple nanostructures; and

forming the multiple nanostructures between the respective apexes of the tips and the surface of the second substrate.

75. (new) The method of claim 74 wherein the nanostructure comprises a carbon nanotube.

76. (new) The method of claim 74 wherein the portion of a tip coated with the catalyst comprises the base of the tip.

77. (new) The method of claim 74 wherein the portion of a tip coated with the catalyst comprises the apex of the tip.

78. (new) The method of claim 74 wherein the nanostructures are formed by additional steps comprising:

flowing a carbon containing gas over the catalyst coated apexes to grow carbon nanotubes protruding from the multiple catalyst coated tips until further growth is limited by the second substrate; and

flushing an area between the first substrate and the second substrate with a nonreactive gas.

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79. (new) The method of claim 74 wherein the first surface of the second substrate positioned distal to the multiple tips comprises a conductive material.
80. (new) The method of claim 74 additionally comprising the step of applying a voltage differential between the second substrate and the multiple tips which is operative to shorten the length of the respective carbon nanotubes grown on the multiple tips.
81. (new) The method of claim 74 additionally comprising the step of applying a voltage differential between the first surface of the second substrate and a second surface of the second substrate, wherein the voltage application is operative to cleave two or more of the carbon nanotubes from the second substrate.
82. (new) The method of claim 74 additionally comprising the step of applying a voltage differential between the second substrate and the multiple tips which is operative to cleave two or more of the carbon nanotubes from the second substrate and shorten the length of the respective carbon nanotubes grown on the multiple tips, wherein the voltage comprises between 0.5 and 50 volts.
83. (new) The method of claim 74 additionally comprising the step of:  
applying a liquid phase chemical to cleave the carbon nanotubes from the second substrate and shorten the cleaved nanotubes.
84. (new) The method of claim 74 additionally comprising the step of:  
applying a gas phase chemical to cleave the carbon nanotubes from the second substrate and shorten the cleaved nanotubes.
85. (new) The method of claim 74 additionally comprising the steps of flowing a carbon containing gas over the catalyst coated apexes comprises:  
placing the first substrate combined with the second substrate into a furnace;  
heating the furnace until the furnace reaches a temperature of at least about 750°C;

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flowing gas into the furnace wherein the gas comprises one of: H<sub>2</sub>, CO, ethanol and methane.

86. (new) The method of claim 85 wherein the gas is flowed into the furnace for a period of about 15 minutes or less.

87. (new) The method of claim 85 additionally comprising the steps of:

cooling the furnace to about room temperature; and  
flowing argon into the furnace while it is cooled to about room temperature.

88. (new) An apparatus of nanostructures, the apparatus comprising:

a first substrate comprising a surface comprising multiple tips, each respective tip comprising a base and an apex;

a nanostructure having a proximate end and a distal end, the proximate end extending from each respective tip;

a second substrate comprising a surface, wherein the distance of the surface from each respective tip correlates with the distal end of essentially each nanostructure.

89. (new) The apparatus of claim 88 the proximate end extends essentially perpendicular from each respective apex.

90. (new) The apparatus of claim 88 wherein each nanostructure comprises a carbon nanotube.

91. (new) The apparatus of claim 88 wherein each apex points essentially away from the first substrate at an angle of about 90°.

92. (new) The apparatus of claim 91 wherein the surface of the first substrate is essentially parallel to the second substrate and the maximum length of each carbon nanotube correlates with the distance of the surface from the respective tips.

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93. (new) The apparatus of claim 88 additionally comprising a coating on at least a portion of each tip, the coating comprising at least one of: a catalyst; a transition metal and a transition metal oxide.